

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A method of preparing an integrated circuit (IC) for thermal testing, the method comprising:

designing a layout of the IC to include a plurality of temperature generation devices to be positioned within the IC, wherein the temperature generation devices functions for a primary purpose of affecting a temperature at the IC;

designing a layout of the IC to include a plurality of temperature sensor devices to be positioned within the IC; and

constructing the IC with the plurality of temperature generation devices and the plurality of temperature sensors positioned within the IC.

2. (original) The method according to claim 1, further comprising providing a user with instructions to operate the temperature generation device to perform thermal testing on the IC.

3. (original) The method according to claim 1, further comprising the step of positioning a temperature sensor within close proximity to the IC.

4. (canceled)

5. (canceled)

6. (currently amended) The method according to claim 3, further comprising the step of providing a temperature controller coupled to the plurality of temperature generation devices and the plurality of temperature sensors.

7. (original) The method according to claim 6, comprising the more specific step of positioning the temperature controller within the IC.

8. (original) The method according to claim 1, further comprising the step of locating the IC within an IC wafer.

9. (original) The method according to claim 1, further comprising the step of separating the IC from an IC wafer, creating an independent IC device.

10. (original) The method according to claim 1, further comprising the step of positioning the IC on a circuit board that is populated with peripheral devices which would be present during actual operation of the IC.

11. (currently amended) A method for thermally testing an integrated circuit (IC), the method comprising:

operating a plurality of temperature generation devices located within the IC for the primary purpose of affecting a temperature at the IC; and

sensing the temperature at the IC with a plurality of temperature sensor devices located within the IC.

12. (original) The method according to claim 11, including the more specific step of sensing the temperature at the IC using a temperature sensor located within close proximity to the IC.

13. (canceled)

14. (currently amended) The method according to claim 12, further comprising the steps of:

initializing a test of the IC, including presetting a target temperature to be maintained at the IC;

enabling the plurality of temperature sensors;

enabling and regulating the plurality of temperature generation devices until the temperature at the IC reaches the target temperature;

initializing a functional test for the IC; and

offsetting changes in the temperature at the IC with a change in regulation of the plurality of temperature generation devices to achieve the target temperature during the functional test to the IC.

15. (currently amended) The method according to claim 12, further comprising the step of applying the plurality of temperature sensors to communicate in real-time with an integrally formed power management unit used with the IC for a primary purpose of adjusting voltage levels and frequency of the IC.

16. (original) The method according to claim 11, further comprising the step of communicating the temperature at the IC to a temperature controller.

17. (original) The method according to claim 11, further comprising the step of predefining a maximum allowable temperature for the IC.

18. (currently amended) A method for thermally assisted testing of an integrated circuit (IC), the method comprising:

(a) setting a target temperature to be generated by a plurality of temperature generation devices located within the IC;

(b) operating the plurality of temperature generation devices to generate the target temperature;

(c) operating the IC;

(d) sensing a temperature associated with the IC with a plurality of temperature sensing devices; and

(d) adjusting the target temperature of at least one of the plurality of temperature generation devices relative to the temperature associated with the IC.

19. (original) The method according to claim 18, further comprising the step of communicating the temperature associated with the IC to a temperature controller.

20. (currently amended) The method according to claim 19, comprising the more specific step of using the temperature controller to adjust the target temperature depending on the temperature associated with the IC, and to instruct the plurality of temperature generation devices to generate the target temperature.

21. (original) The method according to claim 18, further comprising the step of initializing a functional test of the IC.

22. (currently amended) The method according to claim 18, further comprising the step of configuring the temperature controller to maintain the temperature associated with the IC at a substantially constant temperature by offsetting changes in the temperature associated with the IC and any peripheral devices with a change in the target temperature to be generated by the plurality of temperature generation devices.

23. (canceled)

24. (currently amended) A system for thermally assisted testing of an integrated circuit (IC), comprising:

at least two temperature generation devices located within the IC and configured for a primary purpose of affecting a temperature at the IC;

at least two temperature sensors located within close proximity to the IC; and

a temperature controller coupled to the at least two temperature generation devices and to the at least two temperature sensors.

25. (currently amended) The system according to claim 24, wherein the device is also comprised of a power management unit electronically coupled to the at least two temperature sensors and configured for adjusting voltage levels and frequency of the IC, wherein the power management unit communicates in real-time with the temperature sensor.

26. (currently amended) The system according to claim 24, wherein the at least two temperature sensors ~~is~~are installed within the IC.

27. (canceled)

28. (original) The system according to claim 24, wherein the temperature controller is installed within the IC.

29. (original) A method for thermally assisted testing of an integrated circuit (IC), the method comprising:

initializing a test of the IC, including presetting a target temperature to be maintained at the IC;

enabling a temperature sensor located within close proximity to the IC;

enabling and regulating a temperature generation device located within the IC until a temperature associated with the IC reaches the target temperature;

initializing a functional test for the IC; and

offsetting changes in the temperature associated with the IC with a change in regulation of the temperature generation device to achieve the target temperature during the functional test to the IC.

30. (original) The method according to claim 29, comprising the more specific step of installing the temperature sensor within the IC.